Fitness Training & Components

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1.0 - Introduction

1.1 - Fitness is defined as *the level of physical capability in an individual sufficient to acquire and maintain good health*, and it requires *regular comfortable exercise* to maintain a healthy level of fitness. Fitness is required in two major parts of daily life:

1. Health
   - *Refers to a level of fitness that is necessary to keep you healthy and able to function normally in daily life*

The components of Health Fitness include:

1. **Cardio-Vascular endurance**
2. **Strength**
3. **Muscular Endurance**
4. **Flexibility**
5. **Body Composition**

2. Skill
   - *Refers to a level of fitness that is necessary when participating in other daily tasks, sport, recreation, self-defence, and*

The components of Skill Fitness include:

1. **Agility**
2. **Balance**
3. **Coordination**
4. **Power**
5. **Reaction Time**
6. **Speed**

(Exersice Perscription, 2011)

1.3 - The following experiment is based around the Queensland state average scores across multiple fitness tests in a variety of different areas. The aim of the task is complete and record my personal score in 5 different tests and compare that score (My PB) to the state average, and discuss how I could improve my results in the tests I am below the state average, or how I could make sure I stay above state average in the areas I excel in. The 5 chosen tests are:

1) **Beep Test**
2) **15 min run**
3) **Push Ups**
4) **Sit Ups**
5) **Vertical Jump Test**

2.0 - Beep Test

The **Beep Test**, or "20-m shuttle run test" as it is formally known, is a widely known and proclaimed fitness test that is used by coaches, trainers, and others alike to estimate an individual's maximum oxygen uptake (Wikipedia, 2011). The test is focused mainly on **Cardio-Vascular endurance.** This component of fitness is related to the efficiency of the heart muscle, circulatory and respiratory systems. (Exersice Perscription, 2011)

My final result upon completion of the beep test was 10.9. This score in relation to the state average puts me at a "high" level.

To remain above the state average and retain my personal score I could base my training sessions around the **F.I.T.T.** principal (Frequency, Intensity, Time, Type). As well as doing this, I could also use a heart rate monitor and ensure my heart rate stays above 133.25. This target is 65% of my maximum heart rate (206), and therefore by maintaining this heart rate whilst I am **training, jogging, practicing or participating in any physical exercise**, I could increase my maximum oxygen uptake and therefore maintain or improve my beep test score.

3.0 - 15 Minute Run

The **Balke 15 Minute Run** is one of many aerobic fitness tests designed to accurately predict an individual's maximum oxygen uptake. Similar to the **Beep Test,** the 15 minute run is mainly focused on the fitness component of **Cardio-Vascular endurance.** This component of fitness is related to the efficiency of the heart muscle, circulatory and respiratory systems. (TopEndSports, 2010).

My end result upon finishing of the 15 minute run was **2.9km**. This means that I managed to run 2.9km within 15 minutes. Compared to the state averages, I come under the category of "High", being fit enough to run 2.7km or more.

To improve or maintain this result I could base my training sessions around the **F.I.T.T.** principal (Frequency, Intensity, Time, Type). Due to this fitness test being extremely similar to **2.0 - Beep Test**, most (if not all) methods and techniques used to train and improve my result will be identical to those used in the Beep Test. Similar to the Beep Test, the target to improve my result is 65% of my maximum heart rate (206), and therefore by maintaining this heart rate whilst I am training, jogging, practicing or participating in any physical exercise, I could increase my maximum oxygen uptake and therefore maintain or improve my 15 minute run result.

4.0 - Push Ups

The **Push Ups Test** is a basic muscular-strength test designed to record the maximum amount of push ups a person can do within 30 seconds. This test is focused on the components of **Strength** and **Muscular Endurance.**

My score was unfortunately a low 16, putting me in the below average area for my age as my score was under 20 push ups.

To improve my score and make it into the state average area, I would be able to use the fitness training method of **specificity** to achieve this. The reason for this is because Push Ups focus mainly on a small group of muscles for its Primary Muscles worked. These are the **Anterior and Medial Deltoids**, **Triceps** and **Pectorals** (Wikipedia, 2011). By building my training session around increasing the strength and power of these three muscle groups I would eventually be able to achieve my goal. Another method I could use to achieve my goal is **overload**, meaning I slowly increase the amount of push ups I do every day/two days. This method is overall not effective as **specificity,** but it does allow much less workouts and less time at the gym.

Personally, I am a regular participant of Rugby League, meaning that my Strength and Muscular Endurance may be far greater than say a regular participant of Basketball. The reason behind this is because Rugby League is a full contact sport that involves heavy tackling, mainly around the abdominal region. But, in the game of Basketball, contact is a foul and rarely happens; meaning that less Strength and Muscular Endurance is required.

5.0 - Sit Ups

The **Sit Ups Test** is another basic muscle-strength test designed to record the maximum amount of sit ups a person can do within 2 minutes. This test is focused on the fitness components of **Strength** and **Muscular Endurance.**

My result was 47 sit ups. This score puts me at the state average of "normal," meaning I can achieve more than 35 and less than 65.

To maintain or improve my results I can primarily use the method of **Overload** to reach this goal. The reason for this is overload is an excellent method for Sit Ups as it allows no real vigorous gym sessions and allows a great results in the end. Doing the overload method would mean I would slowly increase the amount of sit ups I do each day, for example, before I go to bed. Unfortunately, as a football player, my Tuesday and Thursday training sessions are heavily focussed around abdominal workouts (This is because during the game of Rugby League, there is a huge amount of contact within the abdominal area of the body). Therefore when it comes to performing the overload method, my muscles are already worked out and are still recovering. I could however consume more protein to remove this disadvantage which would mean faster muscle regrowth and recovery.

Similar to **4.0 - Push Ups,** Strength and Muscular Endurance are required in many sports and physical activities, and in my case, Rugby League. There are, however, a large amount of sports that do not utilize these components of fitness to their maximum potential, as they are not required.

6.0 - Vertical Jump Test

The **Vertical Jump Test** is a power based test designed to measure an individual's maximum standing jump height. This test is focused on the components of **Speed** and **Power**. Speed is the ability to perform a movement in a short period of time, and Power is ability to transfer energy into acceleration at a rapid rate.

My result was 13. This score puts me way below the state average of 35.

There are a large range of methods, stretches, exercises and training sessions available for me to increase my vertical jump height, but for the sake of my weight and height I have chosen to go with a **specificity** method that helps me lose slight amounts of weight whilst replacing it with muscle mass. This will allow my body to use the extra muscle gained to exert more power and overall increase my height. The main muscle groups I will specifically focus on will be my quads, calves and hamstrings. Each of these can be easily worked on and improved with simple and quick gym exercises that are safe and effective.

As well as increasing my Vertical Jump height, **Speed** and **Power** are both also used in a huge variety of other physical activities, such as sprinting, long jump, short distance running, swimming and cycling, a variety of sports, and much more. One example of a sport that hugely uses Speed and Power is Rugby League. Within the game of Rugby League, the main objective of an individual with the ball is to charge through the enemy's line of defence. Using Newton's Law of Motion ($f = ma$), we can see that by increasing a player's speed (*a)*, we can overall increase his force (*f)* when running at the opposition, which makes the individual overall harder to take down. By increasing **Speed** and **Power** an individual can massively change how they play a game or participate in a particular physical exercise.

7.0 - Bibliography

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